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EXAMINER

ZHEN, LI B

| ART UNIT | PAPER NUMBER |
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2126

DATE MAILED: 11/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/740,076

Applicant(s)

THORNTON ET AL.

Examiner

Li B. Zhen

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Claims 1 – 30 are pending in the current application.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 1 – 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,549,936 to Hirabayashi [cited in previous office action] in view of U.S. Patent No. 6,711,616 to Stamm et al. [hereinafter Stamm].**

4. As to claim 1, Hirabayashi teaches the invention substantially as claimed including a job management apparatus [server gateway 203, Fig. 2; col. 6, lines 52 – 65] for use in a batch job execution system including a plurality of service providers [servers 101 – 103, Fig. 1; col. 5, lines 50 – 63] in communication with the job management apparatus, the apparatus comprising:

a client communications part which receives a batch job from a client [server gateway carries out the following processing: Receiving a variety type of requests (demand) from the respective clients; col. 6, lines 28 – 30];

an extracting part which extracts a task from the batch job [a step of extracting by the second computer, the content of the plurality of scripts in the request data stream; col. 2, lines 48 – 49]; and,

an assigning part which delegates the task to one of the plurality of service providers [judging to which server the request should be transferred] for performing the task [server gateway 203 receives the request block 202 transferred from the respective clients and analyzes the request, then judging to which server the request should be transferred; col. 6, lines 53 – 56].

5. Although Hirabayashi teaches the invention substantially as claimed, Hirabayashi does not specifically teach receiving a first signal from at least one of the plurality of service providers, and in response to the first signal delegating the task to one of the plurality of service providers for performing the task.

However, Stamm teaches a job management apparatus [task distribution system 10, Fig. 1; col. 2, lines 50 – 65] for use in a batch job [Each task includes one or more subtasks; col. 1, lines 50 – 62] execution system [system for distributing by a server data processing system computing tasks; col. 1, lines 50 – 55] including a plurality of service providers [Clients 12a-n are workstation, Fig. 1; col. 2, lines 50 – 65], receiving a batch job [Computing work to be performed is organized by server 20 into tasks and subtasks; col. 3, lines 1 – 10], an extracting part which extracts a task from the batch job [Each task is independent of other tasks and is comprised of one or more subtasks; col. 3, lines 1 – 10], receiving a first signal from at least one of the plurality of service providers [server 20 receives a work request from a client; col. 3, lines 10 – 20], and in

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response to the first signal delegating the task to one of the plurality of service providers [server 20 finds the subtask with resource requirements best matching the available resources of the requesting client; col. 3, lines 10 – 26] for performing the task [server 20 returns a reference to the subtask, for example, a command by which the subtask is performed, to the requesting client; col. 3, lines 10 – 26].

6. It would have been obvious to a person of ordinarily skilled in the art at the time of the invention to apply the teaching of receiving a first signal from at least one of the plurality of service providers, and in response to the first signal delegating the task to one of the plurality of service providers for performing the task as taught by Stamm to the invention of Hirabayashi because this provides a system and method for allocating subtasks to a plurality of client servers based on resource requirements of the subtasks and resource characteristics of the client servers [col. 9, lines 57 – 67 of Stamm].

7. As to claim 9, Hirabayashi as modified teaches a batch job execution system [col. 6, lines 52 – 65 of Hirabayashi] for communicating with at least one client, comprising:

a job management apparatus in communication with the clients which receives a batch job from a client [col. 6, lines 28 – 30 of Hirabayashi], extracts a task from the batch job [col. 2, lines 48 – 49 of Hirabayashi], and assigns the task [col. 6, lines 53 – 56 of Hirabayashi];

a job database in communication with the job management apparatus which stores the batch job [registers a job into the job queue 923, Fig. 9; col. 10, line 45 of Hirabayashi];

a plurality of service providers [Clients 12a-n are workstation, Fig. 1; col. 2, lines 50 – 65 of Stamm] in communication with the job management apparatus [task distribution system 10, Fig. 1; col. 2, lines 50 – 65 of Stamm] which receive the assigned task [Server 20 selects subtask 1 and returns the selection to client 12a in the form of a command; col. 4, lines 15 – 33 of Stamm], perform the task [Client 12a then executes subtask 1; col. 4, lines 19 – 33 of Stamm], and return a result to the job management apparatus [client 12a finishes execution of subtask 1 and returns a status to server 20; col. 3, lines 19 – 33 of Stamm]; and,

at least one provider manager [software that monitors local resource usage and resource availability; col. 2, lines 50 – 65 of Stamm] in communication with the job management apparatus and in communication with the plurality of service providers which monitors the tasks being performed on the service providers and provides status information to the job management apparatus [clients 12a-n are configured with respective software that monitors local resource usage and resource availability on the clients; col. 2, lines 50 – 65 of Stamm].

8. As to claim 13, Hirabayashi as modified teaches a system for executing a batch job including a plurality of tasks [col. 6, lines 52 – 65 of Hirabayashi], the system comprising:

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a first service provider configured to send a first signal for requesting work
[server 20 receives a work request from a client; col. 3, lines 10 – 20 of Stamm];

a second service provider configured to send a second signal for requesting work
[server 20 waits for another request for a subtask from a client; col. 4, lines 19 – 33 of
Stamm]; and,

a job management apparatus including an assigning part [top level selector
selects a subtask from amongst the subtasks to be performed; col. 6, lines 19 – 38 of
Stamm] and a contact part in communication with the first and second service providers
[a plurality of client data processing systems ("clients") 12a-n coupled to a local area
network 14, for example. Server data processing systems ("servers") 16, 18, and 20 are
also coupled to network 14; col. 2, lines 50 – 65 of Stamm], the assigning part
configured to delegate one of the tasks to one of the first and second service providers
responsive to receiving the first and second signals from the service providers [server
20 finds the subtask with resource requirements best matching the available resources
of the requesting client; col. 3, lines 10 – 26 of Stamm].

9. As to claim 17, Hirabayashi as modified teaches a method for preparing and
executing a batch job by a batch job execution system [col. 6, lines 52 – 65 of
Hirabayashi], comprising the steps of:

submitting a batch job with processing parameters to a job management
apparatus [col. 6, lines 28 – 30 of Hirabayashi];

storing the batch job in a job database [registers a job into the job queue 923, Fig. 9; col. 10, line 45 of Hirabayashi];

receiving a first signal from at least one of a plurality of service providers [server 20 receives a work request from a client; col. 3, lines 10 – 20 of Stamm], which informs the job management apparatus of the service providers ability to perform a task [request for a subtask includes data that indicate the identity of the requesting client 12a and the resource availability of client 12a; col. 4, lines 5 – 19 of Stamm];

determining whether the batch job execution system is able to process the batch job [server 20 finds the subtask with resource requirements best matching the available resources of the requesting client; col. 3, lines 10 – 26 of Stamm];

extracting at least one task from the batch job [col. 2, lines 48 – 49 of Hirabayashi];

delegating the task to the service providers in response to the first signal [server 20 finds the subtask with resource requirements best matching the available resources of the requesting client; col. 3, lines 10 – 26 of Stamm];

performing the task delegated to the service provider [Client 12a then executes subtask 1; col. 4, lines 19 – 33 of Stamm];

completing the task and returning a result from the service provider to the job management apparatus [client 12a finishes execution of subtask 1 and returns a status to server 20; col. 3, lines 19 – 33 of Stamm].

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10. As to claim 24, Hirabayashi as modified teaches an article of manufacture including:

an information storage medium wherein is stored information comprising [storing unit 926, Fig. 9; col. 9, lines 43 – 52 of Hirabayashi];

a client communications software component which receives a batch job from a client [col. 6, lines 28 – 30 of Hirabayashi];

an extracting software component which extracts a task from the batch job [col. 2, lines 48 – 49 of Hirabayashi]; and,

an assigning software component which receives a first signal from at least one of a plurality of service providers [server 20 receives a work request from a client; col. 3, lines 10 – 20 of Stamm], and in response to the first signal delegates a task to one of the plurality of service providers [col. 3, lines 10 – 26 of Stamm] for performing the task [col. 3, lines 10 – 26 of Stamm].

11. As to claim 2, Hirabayashi teaches the plurality of service providers are operating on a plurality of machines [col. 6, lines 11 – 14].

12. As to claim 3, Hirabayashi as modified teaches the first signal informs the assigning part of the service providers ability to execute a task [request for a subtask includes data that indicate the identity of the requesting client 12a and the resource availability of client 12a; col. 4, lines 5 – 19 of Stamm].

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13. As to claim 4, Hirabayashi teaches at least one contact part which receives a second signal from the service providers, which updates the status of the task being performed by the service provider [element 913, Fig. 9; col. 11, lines 48 – 51].

14. As to claim 5, Hirabayashi teaches the first signal specifies a minimum frequency at which the second signal will be sent to the contact part [col. 3, lines 13 – 14].

15. As to claim 6, Hirabayashi teaches the second signal informs the contact part of completion of the task [col. 3, lines 25 – 27].

16. As to claim 7, Hirabayashi teaches a job database which stores the batch job upon receipt from the client [registers a job into the job queue 923, Fig. 9; col. 10, line 45]; and the job database being regularly updated [job queue managing unit; col. 10, lines 46 – 48] as jobs are executed by batch job execution system [executing instruction for the command is registered into the job queue; col. 10, lines 46 – 48].

17. As to claim 8, Hirabayashi teaches retrieving part, which retrieves the batch job from the job database when the batch job is to be executed [col. 11, lines 2 – 4].

18. As to claim 10, Hirabayashi as modified teaches the provider manager [col. 2, lines 50 – 65 of Stamm] in response to a request from the job management apparatus

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assigns additional service providers to receive tasks from the job management apparatus [col. 4, lines 19 – 35 of Stamm].

19. As to claim 11, Hirabayashi teaches if the service provider fails to complete the task within a predetermined time, the provider manager communicates with the service provider, and informs the job management apparatus of the task status in response to the communication with the service provider [col. 11, lines 48 – 51].

20. As to claim 12, Hirabayashi teaches the provider manager informs the service provider performing the task to terminate performance of the task in response to a signal received from said job management apparatus [col. 8, lines 13 – 16].

21. As to claim 14, Hirabayashi as modified teaches a provider manager associated with the first service provider [col. 2, lines 50 – 65 of Stamm], the provider manager in communication with the job management apparatus and configured to send control signals between the first service provider and the job management apparatus [col. 2, lines 50 – 65 of Stamm].

22. As to claim 15, Hirabayashi as modified teaches the provider manager is further associated with the second service provider and configured to send control signals between the second service provider and the job management apparatus [col. 4, lines 19 – 34 of Stamm].

23. As to claim 16, Hirabayashi as modified teaches the first and second service providers are in communication with the job management apparatus via a data network [a plurality of client data processing systems ("clients") 12a-n coupled to a local area network 14, for example. Server data processing systems ("servers") 16, 18, and 20 are also coupled to network 14; col. 2, lines 50 – 65 of Stamm].

24. As to claim 18, Hirabayashi as modified teaches retrieving the batch job from the batch job database prior to the step of extracting at least one task [col. 11, lines 2 – 4 of Hirabayashi].

25. As to claim 19, Hirabayashi as modified teaches delegating a plurality of tasks to the plurality of service providers to be performed in parallel [subtasks within a task may have a required order of execution or may be performed in parallel; col. 3, lines 1 – 10 of Stamm].

26. As to claim 20, Hirabayashi as modified teaches receiving a second signal from the service provider performing the task which updates the status of the task being performed [col. 4, lines 57 – 67 of Stamm].

27. As to claim 21, Hirabayashi as modified teaches assigning additional service providers to perform tasks for the job management apparatus if it is determined that the

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batch job execution system is unable to process the job [col. 4, lines 19 – 35 of Hirabayashi].

28. As to claim 22, Hirabayashi teaches communicating with the service provider performing the task after a predetermined time [see Fig. 4, communication sequence]; informing the job management apparatus of the tasks status; and, the job management apparatus determining whether to re-assign the task or wait for task completion in response to the step of updating the task status [col. 6, lines 24 – 25].

29. As to claim 23, Hirabayashi teaches terminating the step of performing the task in response to receiving a signal from the job management apparatus, prior to the step of completing the task [col. 6, lines 25 – 26].

30. As to claim 25, Hirabayashi as modified teaches the assigning software component monitors which service providers are able to perform a task [col. 3, lines 10 – 26 of Stamm].

31. As to claim 26, this is rejected for the same reasons as claim 4 above.

32. As to claim 27, this is rejected for the same reasons as claim 5 above.

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33. As to claim 28, Hirabayashi as modified teaches a job database software component which stores the batch job upon receipt from the client [server may maintain a database of resource information for the respective clients; col. 4, lines 34 – 43 of Stamm], wherein the client communications software component is in communication with the job database software component [Database server 18...is coupled to network 14 and configured with software that interfaces with the subtasks; col. 3, lines 36 – 43 of Stamm].

34. As to claim 29, this is rejected for the same reasons as claim 8 above.

35. As to claim 30, Hirabayashi as modified teaches at least one provider manager software component [software that monitors local resource usage and resource availability on the clients; col. 2, lines 50 – 65 of Stamm] in communication with the plurality of service providers which monitors the tasks being performed on the service providers and provides status information to the job management software component [col. 2, lines 50 – 65 of Stamm].

Conclusion

36. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 6,757,730 to Lee et al. teaches a method for network-based distributed task brokering and parallel processing.

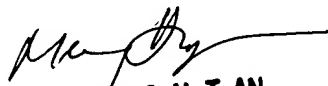
37. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Li B. Zhen whose telephone number is (571) 272-3768. The examiner can normally be reached on Mon - Fri, 8:30am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Li B. Zhen
Examiner
Art Unit 2126

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